

## First information concerning nestling diet in the Bare-necked Fruitcrow *Gymnoderus foetidus*

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### Primera información sobre la dieta de los polluelos del Cuervo Higuero Cuellopelado *Gymnoderus foetidus*

#### Abstract

Despite being widespread throughout most of the Amazon, the Bare-necked Fruitcrow *Gymnoderus foetidus* is poorly known and nestling diet is undocumented. I report herein the first observations on the nestling diet in this cotinga.

**Keywords.** Aves, cotinga, Cotingidae, diet, fruit, foraging, insects.

#### Resumen

A pesar de tener una amplia distribución en la mayor parte de la Amazonía, el Cuervo Higuero Cuellopelado *Gymnoderus foetidus* es poco conocido y la dieta de los polluelos no se ha documentado. En esta nota reporto las primeras observaciones sobre la dieta de pichones de esta cotinga.

**Palabras Clave.** Aves, cotinga, Cotingidae, dieta, frutas, forrajeo, insectos.

The Bare-necked Fruitcrow *Gymnoderus foetidus* occurs throughout most of the Amazon, principally in seasonally flooded forest along riverbanks and at the edges of oxbow lakes, although it also occupies drier areas in some parts of its range [1, 2]. Despite being widespread, the species is poorly known [2]. Kirwan and Green [2] stated that “only a few nests have ever been found” [1,3]. Nesting has been documented between August and March at Sani Lodge in eastern Ecuador [4] and in September-November at Cocha Cashu, southeast Peru [5]. Elsewhere, a nest in Brazil was under construction in late January [6] with another, at an unknown stage, found in October [7]. The scant data available suggest that nests are typically sited on branches at considerable height with estimates mostly ranging from 20 – 40 m above ground [5, 4], although one nest in Brazil was estimated as being just 6-10 m up [6]. The only records of young are from Ecuador and involve an early stage individual at Sani Lodge in late March [4] and a fledged juvenile in early August at the same locality [2]. Nestling diet is undocumented.

Adults are “principally frugivorous” [2] and stomach contents of specimens largely comprise fruit and seeds [3, 8]. Field observations also suggest fruit is predominant with nests at Cocha Cashu often constructed near fruiting trees belonging to the family Lauraceae which appeared to be a favoured resource [5]. Labels attached to 13 specimens in Louisiana State University Museum of Zoology make no mention of any arthropod remains in the stomach contents [3]. Evidence for insectivory comes from remains reported in stomach contents of birds collected in Suriname [9] and observations of aerial feeding on ants or termites from Brazil [10]. Lane concluded that “insectivory may be fairly infrequent and opportunistic, as in the cases noted by Whittaker [10], or possibly seasonal” [3]. The comparatively recent growth in the construction of canopy towers at Amazonian lodges provides occasional opportunities to observe this and other canopy dwelling species whose breeding behaviour is inadequately known.

On 28 October 2016, an adult female *Gymnoderus foetidus* was discovered tending a single nestling, estimated to be in the early growth stage, at a height of c. 40 m above ground in a *Ceiba* (Bombacaceae) tree at Sani Lodge, province of Napo, Ecuador. The adult was first noticed when it departed the tree at c. 06h00. It returned approximately five minutes later with a large red berry-like fruit, which it offered to the nestling on the top of a thick branch. The nest was not visible, the nestling's head and neck only coming in to view when it reached up to take food from the adult. The adult then settled over the nestling, apparently brooding it. After c. 20 minutes the adult again left the nest and returned some 10-15 minutes later with three of the same fruits which it fed to the nestling. The adult then settled over the nestling again. By the time the adult next left the nest, at c. 07h00, the early-morning mist was lifting and the temperature rising. After a fairly lengthy absence (time unrecorded) the adult returned with a large insect that it fed to the nestling. Over the next three hours, the adult was observed to return to the nest every 40-60 minutes with insect prey. Once an insect was gleaned from branches immediately adjacent to the nest, an unusual foraging technique amongst the Cotingidae although reminiscent of that employed by Amazonian Umbrellabird *Cephalopterus ornatus* [2]. Fruit was not delivered again during the observation period which ended at 10h30.

Whilst Pipridae and Cotingidae are largely frugivorous, arthropods and even vertebrates supplement their diet. The former often comprise the majority, or even the entirety of food items delivered to chicks in the nest [11–13]. An entirely frugivorous diet is somewhat nutrient poor [12; 14] and it has been suggested that nestling development and growth rates benefit from the ingestion of insect prey rich in proteins [11]. Studies of the Palkachupa Cotinga *Phibalura boliviana* have shown that the percentage of fruit in the nestling diet increases with age [15], which would appear to support the view that insect food is particularly valuable during the early stages of a chick's development.

Whilst recognising that the observations reported here are anecdotal, it is interesting to consider the behaviour observed. It is probable that insect prey were harder to locate in the comparative cold of early morning and the subsequent switch to provisioning with insect food as the air temperature increased and the mist evaporated is consistent with this hypothesis. Temporal changes over the course of the day in the diet of *P. boliviana* have been documented [16] with an increase in the amount of time spent foraging for insects between early and mid-morning noted. Avalos [16] remarked that “foraging of insects could be related to insect abundance at certain times of day” and the availability or ease of capture of invertebrate prey relative to air temperature seems the most likely causal factor.

Observations presented here are not entirely consistent with the behaviour described by Avalos [16] in *P. boliviana*, the switch in food items having occurred earlier. This is potentially unsurprising when the two species ranges are considered: *G. foetidus* inhabits Amazonia, whilst *P. boliviana* occurs in subtropical forest at elevations of 1,300–1,900 m where average air temperatures will be slower to rise in the mornings. *Gymnoderus foetidus* has been observed taking airborne ants or termites at heights of c. 50 m above the canopy as early as 05h45–06h00 [10]. It is also possible that some insect foraging patterns across the day may be related to the optimal activity periods of different prey. Though there is little evidence of insectivory in *G. foetidus*, data are limited and the delivery of food types to a nestling noted here may simply reflect the typical foraging behaviour of the adult. An alternative possibility is that the observed behaviour represented a deliberate strategy on the part of the adult. It seems reasonable to assume that the adult would possess knowledge of fruiting trees local to the nest site in which instance fruit could be harvested more quickly than insects could be located and caught. Fruit could have been delivered early in the morning to ensure a rapid and reliable delivery of energy rich food to a nestling which would not have eaten for a protracted period.



Figure 1. Adult *Gymnoderus foetidus* with insect prey visible in the bill. Photo by Jonás Oláh .

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## REFERENCES

- [1] Snow, D.W. (1982). *The Cotingas*. London: British Museum (Natural History) and Oxford University Press.
- [2] Kirwan, G.M., & Green, G. (2011). *Cotingas and Manakins*. London: Christopher Helm..
- [3] Lane, D.F. (2003). First description of song display and other notes on the Bare-necked Fruitcrow (*Gymnoderus foetidus*, Cotingidae). *Ornitologia Neotropical*, 14, 491–497. Retrieved from <https://sora.unm.edu/node/119547>.
- [4] Greeney, H.F., & Gelis, R.A. (2008). Further breeding records from the Ecuadorian Amazon lowlands. *Cotinga*, 29, 62–68. Retrieved from <http://www.neotropicalbirdclub.org/wp-content/uploads/2015/05/C29-Greeney-Gelis.pdf>.
- [5] Robinson, S.K. (1997). Birds of a Peruvian oxbow lake: populations, resources, predation and social behaviour. In Remsen, J.V. (Ed.) *Studies in Neotropical Ornithology Honoring Ted Parker*. Ornithological Monographs 48, 613–639. Washington, D.C.: American Ornithologists Union. doi: <http://doi.org/10.2307/40157558>
- [6] Bérault, E. (1970). The nesting of *Gymnoderus foetidus*. *Ibis*, 112, 256. doi: <http://doi.org/10.1111/j.1474-919X.1970.tb00097.x>
- [7] Sick, H. (1957). Roßhaarpilze als Nesthau-Material brasilianischer Vögel. *Journal of Ornithology*, 98, 421–431. doi: <http://doi.org/10.1007/BF01671688>
- [8] Schubart, O., Aguirre, A.C., & Sick, H. (1965). Contribuição para o conhecimento da alimentação das aves brasileiras. *Arquivos de Zoologia*, 12, 95–249.
- [9] Haverschmidt, F. (1968). *Birds of Surinam*. London: Oliver and Boyd-
- [10] Whittaker, A. (1996). Notes on breeding behaviour, diet and anting of some cotingas. *Bulletin British Ornithological Club*, 116(1), 58–62. Retrieved from <http://www.biodiversitylibrary.org/part/76898#/>
- [11] Morton, E. (1973). On the evolutionary advantages and disadvantages of fruit eating in tropical birds. *The American Naturalist*, 107(953), 8–22. doi: <http://doi.org/10.1086/282813>
- [12] Moermond, T.C., & Denslow, J.S. (1985). Neotropical avian frugivores: patterns of behavior, morphology, and nutrition, with consequences for fruit selection. *Ornithological Monographs*, 36, 865–897. doi: <http://doi.org/10.2307/40168322>
- [13] Stutchbury, B., & Morton, E. (2001). *Behavioral Ecology of Tropical Birds*. London: Academic Press.
- [14] Herrera, C.M. (2001). Seed dispersal by vertebrates. In C.M. Herrera & O. Pellmyr (Eds.). *Plant-animal Interactions. An Evolutionary Approach (185–208)*. Oxford: Blackwell Science.
- [15] Avalos, V. (2015). Diet composition of nestlings and adults of the threatened Bolivian Swallow-tailed Cotinga *Phibalura flavirostris boliviana* (Aves: Passeriformes: Cotingidae) in Bolivia. *Journal of Threatened Taxa*, 7(10), 7649–7654. doi: <http://dx.doi.org/10.11609/JoTT.o4181.7649-54>
- [16] Avalos, V. (2009). Aspectos del comportamiento de forrajeo de *Phibalura flavirostris boliviana* (Cotingidae, Passeriformes). *Ecología en Bolivia*, 44, 62–66. Retrieved from [http://www.scielo.org.bo/scielo.php?script=sci\\_arttext&pid=S1605-25282009000100007](http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S1605-25282009000100007)